

REMARKS

In response to the Office Action dated 28 March 2001, claims 1 and 8 have been amended herein to more particularly point out and distinctly claim Applicant's invention, and to address the Examiner's concern for antecedent basis regarding claim 8. No new matter has been added.

Applicant's invention comprises a satellite-based, wide area communication system wherein individual receivers extract and decode primary data packets uniquely addressed to them from a broadband signal containing primary data packets addressed to many different receivers. At a relay station (*i.e.*, a communications satellite), receiver address and start time information are separated from the plurality of primary data packets. A narrow band beam transmits an index signal containing these addresses and start times to the receivers. A broadband beam carries the primary data packets to the receivers. Each receiver monitors the index signal in real time, searching for its unique address, while buffering the broadband primary data signal. Upon detection of its address, a receiver then utilizes the start time and other identifying data in the index packet to access the relevant primary data packet from the buffer. Applicant's invention thus comprises a method of transmitting individual data packets to specific receivers – *i.e.*, the system simultaneously transmits multiple communications channels or calls to individual receivers. Claims 1 and 8 have been amended herein to explicitly recite these features of the present invention.

The Examiner rejected claims 1, 4-10, and 13-20 under 35 U.S.C. § 102(e) as being anticipated by Sugita. U.S. Patent No. 6,041,124 to Sugita discloses a method of distributing broadcast information, such as weather reports, stock data, etc., to all

subscribing mobile terminals in a Code Division Multiple Access (CDMA) cellular communications system. Sugita, col. 5, ll. 49-55, and col. 7, ll. 9-13. Frequently transmitted broadcast information occupies a unique CDMA Walsh Code channel (the "information services channel," Fig. 4). Infrequently transmitted information is sent on one of the many CDMA Walsh Code channels allocated to call traffic (a "traffic channel," Figs. 1, 4, 12). The service provider periodically transmits update information, referred to as index information data, on a separate channel. The index information comprises type information, a version number, and channel information. The type information identifies a particular broadcast service. The version number indicates the number of the latest revision. The channel information informs the mobile terminal which channel is used to transmit the broadcast information. Sugita, col. 3, ll. 42-54. In one embodiment, the index packet occupies a unique CDMA Walsh Code channel (the "information index channel," Fig. 12). Otherwise, the index packet is transmitted over the paging channel, Figs. 1, 4, 12, which is an inherent part of all CDMA wireless systems. Based on the update information, the mobile terminal can determine whether a particular type of information has been updated without having to receive the broadcast information.

Thus, Sugita describes a method of broadcasting certain information to all subscribing mobile terminals in a wireless system. Each receiver examines an index signal only to compare the version number of the information with the version number of its latest update for that type of information, to avoid receiving redundant information. If a mobile terminal decides to receive the update, the index signal additionally tells it on which channel to look for the broadcast information. Sugita describes no method of

targeting the information to any specific mobile terminal. In contrast, the present invention relates to a method by which each mobile terminal may locate and receive only its own individually addressed data packet from a broadband signal containing many data packets, each intended for a different receiver.

Furthermore, regardless of whether the Sugita information signal is broadcast on a dedicated CDMA channel or on one of the traffic channels, both the information and the index packet are part of the total CDMA spread-spectrum transmission on the forward channel from a cellular network base station to the mobile terminals. The information and index packet are merely encoded into different CDMA code channels in the various embodiments. Thus, Sugita discloses the transmission of only a single broadband radio signal. The claims of the present invention clearly recite the separate transmission of two radio signals: a broadband primary data signal containing a plurality of primary data packets, and a narrow band index signal containing a corresponding plurality of index data packets. As depicted in Applicant's Fig. 4, each receiver includes two sets of demodulators and decoders, each processing a separate radio signal.

The Examiner also rejected claims 1 and 3 under 35 U.S.C. § 102(e) as being anticipated by Saito. U.S. Patent No. 5,914,947 to Saito discloses a CDMA cellular mobile communications system that solves the well-known "near-far problem" of CDMA systems by allocating transmissions to and from mobile terminals into time slots in a Time Division Multiple Access (TDMA) type frame structure. The allocation into TDMA slots is determined by the base station, and is based on the estimated distance of the mobile terminal from the base station. Saito, col. 3, ll. 3-39. The distance estimate is derived from mobile terminal's measurement of the received electric field intensity (*i.e.*,

received signal strength) of the pilot channel. Saito, col. 3, ll. 40-45. This received signal strength value is transmitted from the mobile terminal back to the base station, which performs the distance estimate and assigns communications with that mobile terminal to one of the TDMA slots. Saito, col. 3, ll. 45-51. Saito thus transmits two signals to the mobile terminals – a pilot signal containing sync and frame timing information, which is also used to determine distance, and the CDMA spread-spectrum forward traffic transmission that carries call data. These two signals are described as f1 and f2, respectively, in Fig. 2.

The two signals f1 and f2 of Saito are inapposite to the present invention. The narrowband transmission of Saito – f1 in Fig. 2 – includes no address, start time, or any other information that specifies where within the data transmission – f2 of Fig. 2 – a particular mobile terminal's call data may be received. f1 transmits only sync and frame timing information, and provides a signal whose field strength is measured by the mobile terminal so that the base station may estimate its distance. It is the distance estimate that determines in which time slot of the TDMA frame a mobile terminal's call data is located, and this information is not derived by the mobile terminal from the f1 signal. Furthermore, when a particular mobile terminal receives data from a time slot, it must still utilize the PN code to decode and extract its call data from a CDMA traffic channel. Nothing transmitted on the f1 signal contains this information.

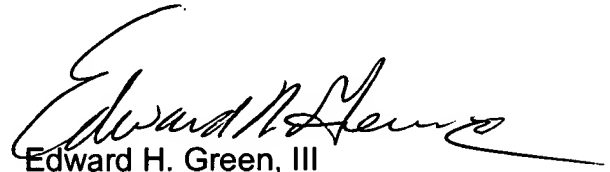
Neither Sugita nor Saito anticipate the present invention. Neither does their combination render the present invention obvious. Specifically, Sugita does not disclose “all of the limitations of” claims 2, 11, or 12, with the exception of certain features rendered obvious by its combination with Saito, as the Examiner has asserted.

As discussed hereinabove, neither Sugita nor Saito – along or in combination – disclose the claimed limitations of the present invention.

All pending claims in the instant application are thus patentably novel and non-obvious over the cited art. Prompt allowance of claims 1-20 is therefore respectfully requested.

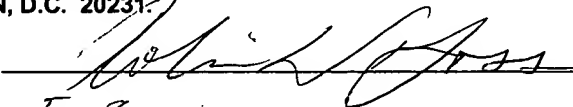
Respectfully submitted,
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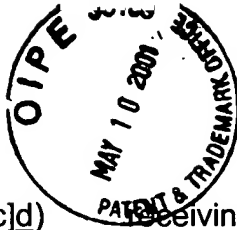


Version with Markings to Show Changes Made

Amendments in the Claims

In accordance with 37 C.F.R. § 1.121(c), the following versions of the claims as rewritten by the foregoing amendment show all the changes made relative to the previous version of the claims.

1. (Twice Amended) A method of transmitting data in a digital communication system between a transmitting station and a [receiving station] plurality of receivers, said transmitting method comprising:
 - a) [transmitting a frameless broadband primary data signal from a transmitting station to a plurality of receivers, wherein said] generating a primary data signal [contains] containing a plurality of [information signals] primary data packets, each said primary data packet intended for a specific one of said receivers.
 - b) transmitting said primary data signal over a broadband channel to said plurality of transceivers;
 - [b)c) transmitting an index signal from said transmitting station to said plurality of receivers, wherein said index signal [contains index information for selecting information signals in said primary data signal] comprises a plurality of index data packets, each said index data packet corresponding to a respective one of said primary data packets and containing address information addressing a specific one of said receivers;



[c]d) receiving and decoding said index signal at [a receiving station]
said plurality of receivers;

[d]e) determining and selecting, at [said receiving station] each said
receiver, [one or more information signals] those primary data packets in said
primary data signal that are intended for said receiver based on [index]
address information [extracted from said index signal] in said index data
signals;

[e]f) extracting and decoding the selected [information signals] primary
data packets in said primary data signal at said [receiving station] plurality of
receivers.

8. (Twice Amended) A method of transmitting data in a digital communication system between a transmitting station and a [receiving station] plurality of receivers, said transmitting method comprising:

a) transmitting [an information signal] a primary data signal from said transmitting station to a relay station, wherein said [information] primary data signal contains a [series of discrete data packets] plurality of primary data packets, each said primary data packet intended for a specific one of said receivers;

b) extracting [index information] a plurality of index data packets from said [information] primary data signal at said relay station, wherein each said index data packet corresponds to a respective one of said primary data packets and contains address information addressing a specific one of said receivers;



- c) re-transmitting said [information] primary data signal from said relay station to [a] said plurality of receivers;
- d) transmitting an index signal from said relay station to said plurality of receivers, wherein said index signal contains said [index information] plurality of index data packets extracted from said [information] primary data signal for selecting said primary data packets in said [broadband] primary data signal;
- e) receiving and decoding said index signal at [a receiving station] said plurality of receivers;
- f) determining and selecting, at [said receiving station] each said receiver, [one or more data packets] those primary data packets in said [information] primary data signal that are intended for said receiver based on [index] address information [extracted from said index signal] in said index data signal;
- g) extracting and decoding the selected primary data packets in said [information] primary data signal at said [receiving station] plurality of receivers.